

Name ANSWER KEY Date \_\_\_\_\_ Period \_\_\_\_\_

## NGA Review (Algebra 1-2)

### Scenario

You have to decide which of two gyms to join.

- The first club, "Bye Bye Cellulite," charges a one-time enrollment fee of \$400 to join plus a monthly membership fee of \$40.
- The second club, "Pump You Up," charges a one-time enrollment fee of \$600 to join plus a monthly fee of \$35.

#### #1

Create a table to show the cost of being a member for at least a year at "Bye Bye Cellulite".

Month Number (x)	Total Cost
1	$400 + 40 \cdot 1 = 440$
2	$400 + 40 \cdot 2 = 480$
3	$400 + 40 \cdot 3 = 520$
4	$400 + 40 \cdot 4 = 560$
5	$400 + 40 \cdot 5 = 600$
6	$400 + 40 \cdot 6 = 640$
7	$400 + 40 \cdot 7 = 680$
8	$400 + 40 \cdot 8 = 720$
9	$400 + 40 \cdot 9 = 760$
10	$400 + 40 \cdot 10 = 800$
11	$400 + 40 \cdot 11 = 840$
12	$400 + 40 \cdot 12 = 880$

#### #2

Create a table to show the cost of being a member for at least a year at "Pump You Up".

Month Number (x)	Total Cost
1	$600 + 35 \cdot 1 = 635$
2	$600 + 35 \cdot 2 = 670$
3	$600 + 35 \cdot 3 = 705$
4	$600 + 35 \cdot 4 = 740$
5	$600 + 35 \cdot 5 = 775$
6	$600 + 35 \cdot 6 = 810$
7	$600 + 35 \cdot 7 = 845$
8	$600 + 35 \cdot 8 = 880$
9	$600 + 35 \cdot 9 = 915$
10	$600 + 35 \cdot 10 = 950$
11	$600 + 35 \cdot 11 = 985$
12	$600 + 35 \cdot 12 = 1020$

#3

Write two equations to represent the price of being a member at "Bye Bye Cellulite" and "Pump You Up" in terms of the number of months for which you have been a member (be sure to define your variables).

Variables (be specific):

$m = \text{months}$

$C = \text{TOTAL COST}$

**Bye Bye Cellulite**

Equation:

$400 + 40m = C$

**Pump You Up**

Equation:

$600 + 35m = C$

#4

At what month will the price of being a member of "Bye Bye Cellulite" and "Pump You Up" be the same? What will the cost be at that month? (There is exactly one month where this happens).

$$\begin{array}{r} 400 + 40m = 600 + 35m \\ -35m \quad -35m \\ \hline \end{array}$$

$$\begin{array}{r} 400 + 5m = 600 \\ -400 \quad -400 \\ \hline 5m = 200 \end{array}$$

Month: 40

$$\begin{array}{r} 5m = 200 \\ \hline 5 \quad 5 \\ \hline m = 40 \end{array}$$

Cost: \$2000

$$\begin{array}{l} 400 + 40(40) = \text{COST} \\ 400 + 1600 = \\ 2000 = \end{array}$$

## #5 Reasoning Response

Jose wants to be a member at "Pump You Up" for four years. Since he knew the cost for one year is \$1,020, he figured four years would cost  $\$1,020 \times 4 = \$4,080$ .

This is incorrect.

a) In complete sentences, explain the error(s) in his thinking.

THE 1020 FIRST YEAR COST INCLUDES A \$600 ENROLLMENT FEE.

HE WOULD NOT HAVE TO PAY IT ALL 4 YEARS.

b) Find the correct cost for a four year membership. Be sure to show all steps.

$$600 + 35m = \text{COST}$$

$$4 \text{ YEARS} = 48 \text{ MONTHS}$$

$$600 + 35(48) = \text{COST}$$

$$600 + 1680 =$$

Answer: \$ 2280

## #6 Compare and Contrast Response

Shakira is going on tour and looking to get in shape for her shows. Which gym should she join? Explain your reasoning in two or more complete sentences.

THE COST WILL BE THE SAME AT 40 MONTHS. (PROBLEM 4)

IF SHE IS GOING TO BE ~~AM~~ A MEMBER FOR LESS THAN

40 MONTHS, SHE SHOULD JOIN "BYE BYE CELLULITE". ~~HE SHE~~

OTHERWISE, SHE SHOULD JOIN "PUMP YOU UP".